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ABSTRACT

The study investigated the effectiveness of an ecological inventory and screen writing for the acquisition of reading words for secondary-aged moderately mentally handicapped students. The study utilized an ecological inventory model which is an adult-referenced curriculum based on adult tasks and local resources and environments, rather than on the developmental stages of childhood. Parents and caretakers were interviewed and a list of food words to be taught with screen writing reinforced by direct experience was assembled. Screen writing on a textured surface, involving visual, auditory, tactile, and kinesthetic input, was used for instruction with 11 subjects, aged 14 to 20. Results indicated that screen writing and field experiences yielded higher word recognition gains than traditional (flash card) methods of auditory/visual presentation of the word(s) combined with field experiences. (Author/DB)

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# Ecological Inventories and Screen Writing for Secondary Moderately Mentally Handicapped Learners

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Running head: ECOLOGICAL INVENTORIES AND SCREEN WRITING

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# ABSTRACT

The purpose of this study was to investigate the effectiveness of an ecological inventory and screen writing for the acquisition of reading words for moderately mentally handicapped students. Parents and caretakers were interviewed and a list of words to be taught with screen writing was assembled. Screen writing, using visual auditory tactile and kinesthetic input was used for instruction. The results indicate that screen writing and field experiences yield higher word recognition gains than traditional methods of auditory/visual presentation of the word(s) combined with field experiences.

# Ecological Inventories and Screen Writing for Secondary Moderately Mentally Handicapped Learners

The purpose of this paper is to review a strategy for teaching secondary moderately mentally handicapped (MoMH) students to read food words through an adapted visual-auditory-tactile-kinesthetic (VATK) approach. This strategy combines screen writing and concrete experiences with the food item to be learned. The objectives taught are developed from an ecological inventory administered prior to instruction. The strategy teaches skills used in the students' community and relevant to the students' environment.

## Curriculum Rationale

Once MoMH students reach secondary school age, they have reached a crisis point in their lives (Wilcox & Bellamy, 1982). According to these researchers, "Students face a system with significant performance deficits and have relatively little time remaining to develop skills necessary to support work, independent living, and participation in normal community leisure activities" (p.30). The future is no longer a distant horizon to be reached. A curricular model which begins at the beginning

developmentally will catastrophically collide with the future, resulting in students who are developmentally on tract but ill prepared for the demands of adult life. Developmental curriculum models based upon the learning patterns of young children are inappropriate for secondary learners.

Curriculum for secondary handicapped learners should be based upon adult tasks, local community resources, and the individuals' home environments. In that, community demands and resources vary among states, cities, communities, and individual homes and families, combined with the fact that mentally handicapped individuals are relatively immobile, argument is strong for tailoring curricular content to meet the needs of the specific learner.

The model utilized in this review is based upon an "ecological inventory" or "environmental inventory" model which is an adult-referenced curriculum for severely handicapped students (Brown et al., 1976). It suggests a "top-down" model of curriculum as opposed to a "bottom-up" model. This strategy directly addresses adult skills taught in the students' local community. It delves even deeper into the students' home environment to select the specific content to be taught.

Instructional Strategy - Screen Writing

Screen writing, according to Deady (1984) is a procedure to teach reading words and math facts to special learners. This method has been demonstrated effective with students when nothing else appeared to work (Deady, 1984). It teaches the student through the visual, auditory, tactile, and kinesthetic modalities. This method involves all the senses, so it is effective for those students whose sensory learning preferences are not readily apparent. Screen writing, which will be thoroughly described, involves providing the learners with a textured surface so they may actually experience the words to be learned as well as hear, see, and kinesthetically experience the word(s).

The modified screen technique combines screen writing with relevant life experiences because prior to the program implementation, an ecological inventory is completed for each of the students. In order to complete an ecological inventory, each parent or caretaker is interviewed by the teacher using an inventory which the teacher has developed based upon common food items found in a particular locale. All students need not be taught all words from the list on the inventory. There is little need for students to learn words that are not part of his/her life experiences. Students will not retain words that are not reinforced by use in their daily lives.

Instructional Procedure

One step-by-step method employed by the investigators is as follows:

1. Present food item to the student. Teacher asks, "What is this called?" If the student does not know, supply the name for him. Encourage the student to manipulate the food item.
2. Teacher presents the word which has been written according to the screen writing procedure. Teacher says, "This word is_____."
3. Teacher places a piece of soft paper, e.g., newsprint, over the screen. The teacher writes the word to be learned on the paper with a red or black crayon. The word should be four to six inches tall. The screen should be put away while the student studies the item (Deady, 1984).
4. The teacher places the screen word on the table in front of the student. She/He instructs the student to trace the word with his/her middle fingers, saying the word as it is traced. The student's arm should be held slightly above the table to increase kinesthetic input. This procedure should be repeated 10 to 12 times (Deady, 1984). Teacher makes tallies in the margin of the paper to record the number of traces.

This maintains student attention and encourages him/her to continue.

5. Teacher writes the food word in black on a 3 x 5 card. He/She then asks the student to read the word. If the student reads the word correctly, it is placed in his/her personal file box to become part of a food word bank.
6. If the student fails to read the word, the teacher repeats steps 1-4. The steps are repeated until the student achieves mastery or has repeated the procedures five times. After five trials, the final trial is stopped at a step where the student has been successful.
7. Each session begins with a review of the mastered words in the bank (file box). If the student does not recall one of the printed words, that word and any other "forgotten" words are removed from the file box and reintroduced at a later session.
8. If the student masters a food word after going through the procedure the first time, introduce another word. Do not exceed two new words per day until you are sure he/she is retaining them.
9. At the end of the week, the student is taken to the grocery store with a grocery list of the food words for that week. The teacher assists the student in locating the items and the associated food words.

10. During class time used for teaching functional life skills, words such as canned, frozen, etc., are taught. Words mastered during the week should be included and reinforced during cooking lessons.

Construction of Screen Board

1. Materials: 1 manila folder, 1 piece of screen (preferably aluminum), scissors, stapler.
2. Cut the tabs off the folder.
3. Cut the screen to fit the folder so the folder extends one half inch all around the screen.
4. To secure the screen, fold the top margin of the folder over the screen and staple at half inch intervals. Fold the right hand side, then the left hand side, and, finally, the bottom, and staple after folding each side.

(Adapted from Deady, 1984)

Research

Participants and Setting

Screen writing was applied to secondary MoMH students within a rural southeastern community. The subjects, 6 girls and 5 boys, ranged in age from 14 to 20 years (mean age = 15 years).

Their IQ's ranged from 42 to 54. Instruction was conducted in a self-contained classroom on a high school campus. The students were instructed daily with an average of 25 minutes per session. The investigation was carried out for 4 weeks.

Procedure

A pretest was developed from the ecological inventory which the teacher established prior to instruction. A list of food words was compiled using observation of foods in local grocery stores, foods served in the school cafeteria, and food words from the Brigance Essential Skills Inventory. Caretakers and parents were interviewed by the teacher to establish a priority list of words to be taught. The caretakers and parents identified food words associated with food items which were most common in their homes. The process resulted in a personal priority list of food words for each student. Administration of the pretest revealed that the students did not recognize any of the words of their lists prior to instruction.

Instructional procedures, as indicated in the preceding section, were carried out during the first week of the investigation. The only alteration was that only three words were introduced to each student each week. New words were introduced on Monday, Wednesday, and Friday. Words were reviewed and reinforced on Tuesday and Thursday. This procedure was

utilized during each phase of the study. The first week was Phase A.

During the second week or Phase B, the students were given three new words, but the teacher did not employ the screen procedure. The words were presented in an auditory and visual manner only. The words were printed on flash cards. They were presented to the students with auditory clues. The students did not receive any tactile of kinesthetic reinforcement. They did receive the same field experiences as described in the previous section and as in Phase A.

During the third week, the students returned to Phase A of the investigation. Then, during week 4 the students were returned to Phase B, resulting in the ABAB design.

At the end of each week, the students were tested to determine the number of food words retained from the week's instruction. A review of table 1 and 2 indicate the weeks of instruction, number and percentage of words read.

# T A B L E 1

**Phase A**

Number of Words Read and Percentage of Gain

| | Week 1 | Week 3 | Number Read | % Gain to Words Introduced |
|---|---|---|---|---|
| S1 | 3 | 3 | 6 | 100% |
| S2 | 3 | 2 | 5 | 83% |
| S3 | 3 | 3 | 6 | 100% |
| S4 | 3 | 3 | 6 | 100% |
| S5 | 2 | 2 | 4 | 66% |
| S6 | 3 | 3 | 6 | 100% |
| S7 | 1 | 2 | 3 | 50% |
| S8 | 3 | 3 | 6 | 100% |
| S9 | 2 | 2 | 4 | 66% |
| S10 | 3 | 3 | 6 | 100% |
| S11 | 2 | 3 | 5 | 83% |

# TABLE 2

**Phase B**

Number of Words Read and Percentage of Gain

| | Week 2 | Week 4 | Number Read | % Gain to Words Introduced |
|---|---|---|---|---|
| S1 | 1 | 2 | 3 | 50% |
| S2 | 1 | 1 | 2 | 33% |
| S3 | 2 | 1 | 3 | 50% |
| S4 | 1 | 2 | 3 | 50% |
| S5 | 1 | 0 | 1 | 16% |
| S6 | 2 | 1 | 3 | 50% |
| S7 | 0 | 1 | 1 | 16% |
| S8 | 1 | 2 | 3 | 50% |
| S9 | 0 | 0 | 0 | 0% |
| S10 | 0 | 2 | 2 | 33% |
| S11 | 1 | 1 | 2 | 33% |

## Results

Screen writing and field experiences employed during Phase A resulted in a mean gain of 86%, while the traditional flash card method (visual auditory only) combined with field experiences yielded a mean gain of 35%. There appears to be evidence that secondary MoMH students may benefit from an integrated strategy of screen writing and related field experiences when learning to read functional words.

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ECOLOGICAL INVENTORY

DATE: _____

STUDENT: _____

TEACHER/INTERVIEWER: _____

MOST USED GROCERY STORE: 1) _____

2) _____

1 # CATEGORY: Canned Foods
Check the food items that you use the most in your home.

| | Food Item | Specific brands / types |
|---|---|---|
| | Yams | |
| | Corn | |
| | Peas | |
| | Soup | |
| | Stew | |
| | Tuna | |
| | Beans | |
| | Gravy | |
| | Peaches | |
| | Pears | |
| | Turnips | |
| | Pineapple | |
| | Spaghetti | |
| | Others: | |
| | | |

2 # Category: Bread

| | Food Item | Specific brands / types |
|---|---|---|
| | Bread (Loaf) | |
| | Rolls | |
| | Biscuits | |
| | Buns | |
| | Others: | |
| | | |

3 # Category: Cereal

| | Food Item | Specific brands / types |
|---|---|---|
| | Grits | |
| | Oatmeal | |
| | Dry Cereal | |
| | Others: | |

4 # Category: Frozen

| | Food Item | Specific brands / types |
|---|---|---|
| | Corn | |
| | Fish | |
| | Pie | |
| | Pizza | |
| | Squash | |
| | Turnips | |
| | Broccoli | |
| | Lemonade | |
| | Orange juice | |
| | Ice Cream | |

( 4 # Category continued )

| | | |
|---|---|---|
| | Strawberries | |
| | Vegetables | |
| | French Fries | |
| | Pie Crust | |
| | Others: | |
| | | |

5 # Category: Dairy Foods

| | Food Items | Specific brands / types |
|---|---|---|
| | Eggs | |
| | Milk | |
| | Cheese | |
| | Yogurt | |
| | Margarine | |
| | Sour Cream | |
| | Cottage Cheese | |
| | Butter | |
| | Others: | |
| | | |

6 # Category: Meals

| | Food Items | Specific brands / types |
|---|---|---|
| | Beef | |
| | Fish | |
| | Pork Ham | |
| | Bacon | |
| | Roast | |
| | Steak | |

( 6 # Category continued )

| | | |
|---|---|---|
| | Turkey | |
| | Chicken | |
| | Sandwich Meat | |
| | Meat Loaf | |
| | Hot Dogs | |
| | Hamburger Patties | |
| | Ground Beef | |
| | Pork Chops | |
| | Others: | |
| | | |

M. Howard/J. Stewart 1988